

X-Ray Storage Ring Parameters

as of June 2006

Normal Operating Energies	2.800 GeV								
Maximum Operating Current	300 mA								
Lifetime	~20 hours								
Circumference	170.08 meters								
Number of Beam Ports on Dipoles	30								
Number of Insertion Devices	6								
Maximum Length of Insertion Devices	< 4.50 meters								
$\lambda_c(E_c)$ at 1.36 T	1.75 Å (7.1 keV)								
$\lambda_c(E_c)$ at 5.0 T (W)	0.48 Å (26.1 keV)								
B(ρ)	1.36 Tesla (6.875 meters)								
Electron Orbital Period	567.2 nanoseconds								
Damping Times	$\tau_x = \tau_y = 4$ msec; $\tau_z = 2$ msec								
Lattice Structure (Chasman-Green)	Separated Function, Quad Triplets								
Number of Superperiods	8								
Magnet Complement	<table style="border: none;"> <tr> <td style="font-size: 3em; vertical-align: middle;">{</td> <td>16 Bending (2.70 meters each)</td> </tr> <tr> <td></td> <td>40 Quadrupole (0.45 meters each)</td> </tr> <tr> <td></td> <td>16 Quadrupole (0.80 meters each)</td> </tr> <tr> <td></td> <td>32 Sextupole (0.20 meters each)</td> </tr> </table>	{	16 Bending (2.70 meters each)		40 Quadrupole (0.45 meters each)		16 Quadrupole (0.80 meters each)		32 Sextupole (0.20 meters each)
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Nominal Tunes (ν_x, ν_y)	9.8, 5.7								
Momentum Compaction	$4 \cdot 10^{-3}$								
RF Frequency	52.88 MHz								
Radiated Power for Bending Magnets	237 kW (300 mA)								
RF Peak Voltage	1120 kV								
Design RF Power	450 kW								
Synchrotron Tune (ν_s)	0.0023								
Natural Energy Spread (σ_e/E)	9.2×10^{-4}								
Natural Bunch Length (2σ)	8.7 cm								
Number of RF Buckets	30								
Typical Bunch Mode	25								
Horizontal Damped Emittance (ϵ_x)	6.2×10^{-8} meter-rad								
Vertical Damped Emittance (ϵ_y)	3.4×10^{-10} meter-rad								
Power per Horizontal Milliradian (0.3 Å)	38 W								

Arc Source Parameters

Betatron Function (β_x, β_y)	1.0 to 3.5 m, 11.4 to 23.6 m
Dispersion Function (η_x, η'_x)	0.03 to 0.25, -0.25 to 0.08
$\alpha_{x,y} = -\beta'_{x,y}/2$	0.38 to 1.65, -2.3 to 3.6
$\gamma_{x,y} = (1 + \alpha_{x,y}^2)/\beta_{x,y}$	1.073 to 1.133 m ⁻¹ , 0.54 to 0.58 m ⁻¹
Source Size (σ_x, σ_y)	260 to 464 μ m, 62 to 90 μ m
Source Divergence (σ'_x, σ'_y)	261 to 352 μ rad, 13.5 to 14.1 μ rad

Insertion Device Parameters

Betatron Function (β_x, β_y)	1.16 m, 0.33 m
Source Size (σ_x, σ_y)	307 μ m, 11 μ m
Source Divergence (σ'_x, σ'_y)	231 μ rad, 32 μ rad